

# REMARKS

By this Amendment, the specification is amended, an Abstract is added, and claims 13-17 are amended. Reconsideration and prompt allowance of the claims are respectfully requested.

The Office Action objects to the disclosure for informalities. The objection is obviated by the amendments to the specification and the addition of an Abstract. Accordingly, withdrawal of the objection to the disclosure is respectfully requested.

Claims 13-17 stand rejected under 35 U.S.C. §103(a) over JP 60-12,247 (JP '247) and further in view of EP 554,198 (EP '198). Applicant respectfully submits that this rejection is traversed by the amendments to the claims and the following argument. Specifically, the combined disclosures of JP '247 and EP '198 do not teach or suggest all of Applicant's claim limitations.

Independent claims 13 and 17 are amended to recite, respectively, a tool and a method for producing a casting mold for a cast component from molten titanium alloy. Neither JP '247 nor EP '198 discloses, teach, or suggest this composition.

Furthermore, Applicant respectfully submits that JP '247 appears to only teach wherein a coating layer of a casting mold and an intermediate layer back filling the coating layer may comprise: MgO, Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, HfO<sub>2</sub>, Y<sub>2</sub>O<sub>3</sub>, CaO, La<sub>2</sub>O<sub>3</sub>, CeO<sub>2</sub>, BaO, and SiO<sub>2</sub>.

Applicant's casting mold differs from that of JP '247 in that claim 13 recites a specific selection of materials that form the casting mode, specifically, a casting mold that "consists essentially of yttrium oxide, magnesium oxide and calcium oxide."

Furthermore, claim 1 recites wherein the casting mold comprises at least first and second layers, "wherein the second layer which backfills the first layer has less yttrium oxide and is

more coarsely grained than the first layer." Nowhere does the applied art disclose, teach, or suggest at least this feature.

Based upon the specific combination of  $\text{MgO}$ ,  $\text{Y}_2\text{O}_3$ , and  $\text{CaO}$  for making the first and second layers, as well as by the specific feature wherein the  $\text{Y}_2\text{O}_3$  content of the second layer is less than that of the first layer and further in view of the relative particle grain size of  $\text{Y}_2\text{O}_3$  particles of the first and second layer, the thermal shock properties of the casting mold can be remarkably improved. In addition, the recited composition yields a tool having very good resistance to highly corrosive molten titanium alloys.

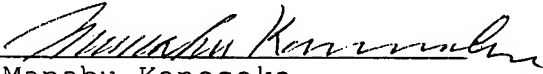
Applicant respectfully submits, that neither EP '198 nor JP '247 singularly, or in any allowable combination suggests Applicant's specific composition, in order to form a casting mold for molten titanium alloys, as recited in claims 13 and 15. Furthermore, nowhere does the applied art suggest that selecting materials, such that the second layer has a lower  $\text{Y}_2\text{O}_3$  content than the first layer, as well as using more coarsely grain  $\text{Y}_2\text{O}_3$  particles in the second layer, will result in the improvement of the thermal shock properties of a casting mold and their resistance against titanium alloys, as disclosed by the Applicant.

Therefore, Applicant respectfully submits that independent claims 13 and 15 are patentable not only due to the failure of the applied art to disclose, teach or motivate all recited features of the claims. Claims 14 and 16-17 depend from these independent claims and are likewise patentable over the applied art for at least their dependence on an allowable base claim, as well as for the additional features they recite. Accordingly, withdrawal of this rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 13-17 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully Submitted,

By   
Manabu Kanesaka  
Reg. No. 31,467

1700 Diagonal Road, Suite 310  
Alexandria, VA 22314  
(703) 519-9785